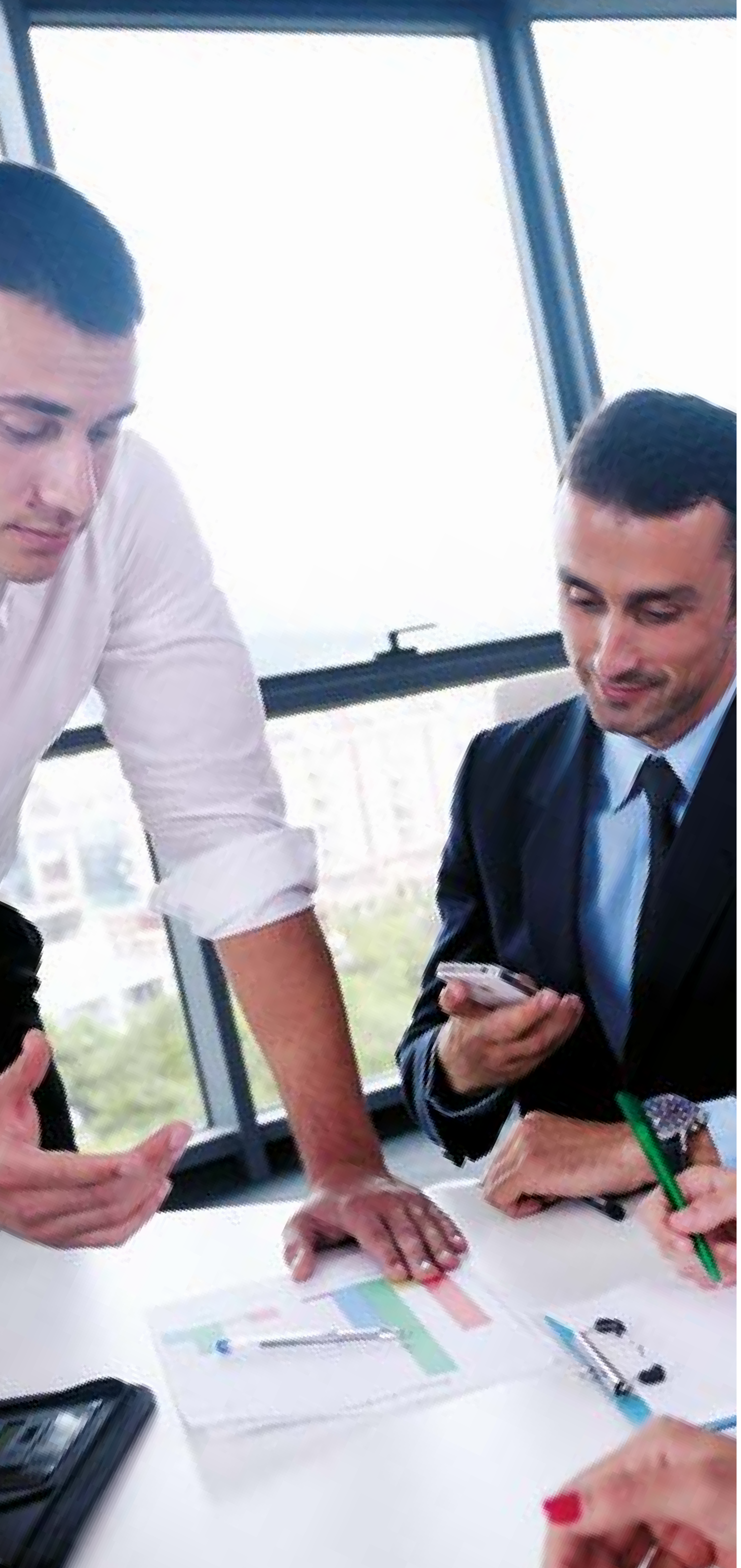


Chapter 1: What is green finance?

LEARNING OBJECTIVES

On completion of this chapter you should be able to:

- Define green finance
- Distinguish between green finance and related terms
- Describe the typical characteristics of green finance approaches
- Outline the state of the green finance sector in the UK and globally.

Finance impacts the natural environment directly and indirectly. The environment also directly and indirectly impacts finance and the performance of investments. There are many possible definitions of green finance but for the purposes of this course, green finance is defined as any financial initiative, process, product or service that is either designed to protect the natural environment or to manage how the environment impacts finance and investment. This chapter explores the dimensions of green finance and compares it to concepts such as sustainable finance and climate finance.

1.1 GREEN FINANCE, SUSTAINABLE FINANCE AND RELATED TERMS

Green finance is one of a number of terms used to label activities related to the two-way interaction between the environment and finance and investment. Related terms include: responsible investment (RI), environmental, social and governance (ESG), sustainable finance and climate finance.

These are often treated synonymously but there are differences in the scope of the terms, particularly in relation to whether they include social and governance issues:

1. **Environmental issues:** Relate to the quality and functioning of the natural environment and natural systems including biodiversity loss; greenhouse gas emissions, renewable energy, energy efficiency, natural resource depletion or pollution; waste management; ozone depletion; changes in land use; ocean acidification and changes to the nitrogen and phosphorus cycles.
2. **Social issues:** Relate to rights, well-being and interests of people and communities including human rights, labour standards, health and safety, relations with local communities, activities in conflict zones, health and access to medicine, consumer protection; and controversial weapons.
3. **Economic issues:** Relate to investee impacts on economic conditions at local, national, and global levels. Performance areas include direct financial performance and risk, and indirect impacts such as through employment, supply chains, and provision of infrastructure.
4. **Governance issues:** Relate to the management of investee entities. Issues include board structure, size, diversity, skills and independence; executive pay; shareholder rights; stakeholder interaction; disclosure of information; business ethics; bribery and corruption; internal controls and risk management; and, in general, issues dealing with the relationship between a company's management, its board, its shareholders and its other stakeholders.

Source: UNEP Inquiry into the Design of a Sustainable Financial System

Chapter 1: What is green finance? (Cont'd.)

Approaches which embrace the full range of these issues are more likely to be termed 'sustainable finance' or 'responsible investment', whereas those that only focus on environmental issues are more likely to be termed 'green finance'. Where the concern is only with preventing or responding to climate change, the term 'climate finance' may be used. Climate finance is also used specifically to refer to the UN climate change negotiations and the provision of aid from developed countries to developing countries to help with climate change mitigation and climate adaptation.

Advocates for a sustainable finance approach argue that it's not possible to separate the environment from society: society depends on the environment for its existence, and human society has a major impact on the environment. Many of today's most pressing environmental issues impact disproportionately on those with the fewest resources, in both high-income and low-income countries, and the need to improve standards of living and to reduce inequality can't be separated from the need to protect our environment.

> *A sustainable financial system is... one that creates, values and transacts financial assets in ways that shape real wealth to serve the long-term needs of an inclusive, environmentally sustainable economy.*

Source: UNEP Inquiry into the Design of a Sustainable Financial System

QUICK QUESTION: WHAT ARE THE MAIN DIFFERENCES BETWEEN SUSTAINABLE FINANCE AND 'GREEN FINANCE'?

Note your answer here before reading on...

Chapter 1: What is green finance? (Cont'd.)

1.2 DEFINING GREEN FINANCE

This course focuses on green finance. Although the term is increasingly used in many countries across the world, there is no single, agreed definition of what constitutes green finance. It can refer to products and services, managing environmental risks, organisational strategies, organisations themselves, as well as investment sectors, industry initiatives and policy instruments.

Some working definitions of green finance in the national and international context include:

G20 Green Finance Study Group: "Financing of investments that provide environmental benefits in the broader context of environmentally sustainable development. These environmental benefits include, for example, reductions in air, water and land pollution, reductions in greenhouse gas (GHG) emissions, improved energy efficiency while utilising existing natural resources, as well as mitigation of and adaptation to climate change and their co-benefits."

Green Finance Initiative: "Funding any means of reducing carbon emissions or raising resource efficiency... It incorporates green crowdfunding for small-scale, community schemes right up to green bond issuance for major infrastructure projects or corporate energy-efficiency schemes."

Organisation for Economic Co-operation and Development (OECD): Green Finance is finance for "achieving economic growth while reducing pollution and greenhouse gas emissions, minimising waste and improving efficiency in the use of natural resources."

People's Bank of China: "Green finance policy refers to a series of policy and institutional arrangements to attract private capital investments into green industries such as environmental protection, energy conservation and clean energy through financial services – including lending, private equity funds, bonds, shares and insurance."

Government of Germany: "Green finance is a strategic approach to incorporate the financial sector in the transformation process towards low-carbon and resource-efficient economies, and in the context of adaptation to climate change."

European Banking Federation: "Green finance includes, but is not limited to:

a. Environmental aspects (pollution, greenhouse gas emissions, biodiversity, water or air quality issues)

b. Climate change-related aspects (energy efficiency, renewable energies, prevention and mitigation of climate change connected severe events)."

Chapter 1: What is green finance? (Cont'd.)

QUICK QUESTION: SUMMARISE THE MAIN SIMILARITIES BETWEEN THE DEFINITIONS ABOVE. ARE THERE ALSO ANY KEY DIFFERENCES TO NOTE?

Note your answer here before reading on...

While these definitions all differ in their emphasis, they generally share some or all of the following elements:

- The role of finance in allocating capital for a wider, more sustainable purpose
- A focus on the use of investment to either benefit the environment or to reduce harm – the wide range of environmental issues this can include is explored in Chapter 2
- A concern to manage environmental risks facing the finance sector and society as a whole. These can be classed as physical, transition (including stranded asset) and liability risks (introduced in Chapter 2 and explored in more detail in Chapter 8)
- A recognition of the policies and infrastructure required to enable green finance – explored in Chapter 3
- A broader context of sustainable development and/or economic growth – explored in Chapters 3 and 4.

In summary, green finance can be considered as the finance sector's strategic approach to meeting the challenges of climate change and the transition to a low-carbon world. And, for the purposes of this course, green finance is defined as, "any financial initiative, process, product or service that is either designed to protect the natural environment or to manage how the environment impacts finance and investment".

Chapter 1: What is green finance? (Cont'd.)

This is a broad definition which acknowledges the different dimensions of the concept of green finance, while retaining an overarching focus on enhancing and sustaining the natural environment, and managing current and future environmental risks. It highlights and recognises the two-way nature of the relationship. Finance and investment can help or harm environmental outcomes, while the environment can also positively or negatively impact the performance of investments or financing activities.

1.3 THE DIMENSIONS OF GREEN FINANCE

The breadth of the term 'green finance' means it can be used to refer to specific financial products and services, including those designed to directly benefit the environment and those designed to manage environmental risks. The term 'green finance' can also be used to refer to an industry sector, as well as to an organisational approach. This course covers all the above.

1.3.1 Green finance products and services

Green finance covers a wide range of financial products and services, which can be broadly divided into banking, investment and insurance products. Examples of these include green bonds, green-tagged loans, green investment funds and climate risk insurance. Chapters 9-13 explore the different types of green finance products in more detail.

But what makes a financial product 'green'? In many cases the 'green' aspect of the product relates to the asset – such as investments in clean energy projects or reforestation. In other cases, the features of the product are designed to encourage or reward environmentally-friendly activity – such as mortgages which are discounted in line with a property's energy efficiency, or investment which links the sustainable management of resources with funding limits or collateral requirements.

Other products that are labelled as 'green' may not be universally accepted as such – for example:

- Financial products (e.g. credit cards) which offer a donation to environmental protection work in reward for a certain level of spend
- Financial products, which respond to an environmental issue (such as flood insurance) but do not seek to address the causes of this issue (such as climate change)
- Financial products which minimise the environmental impacts of the provider's operations (such as using recycled paper) or which offset the customer's normal activities (such as the carbon emissions generated by air travel).

Such products raise the question of where the boundary lies in terms of what constitutes green finance – explored in more detail in Chapters 9-13. Note that, from the definition of green finance used for this course, however, it is clear that the core of the product, service or organisation, should be 'green' and that the focus should be on protecting or improving natural systems, as well as on managing environmental (physical, transition and liability) risks.

Chapter 1: What is green finance? (Cont'd.)

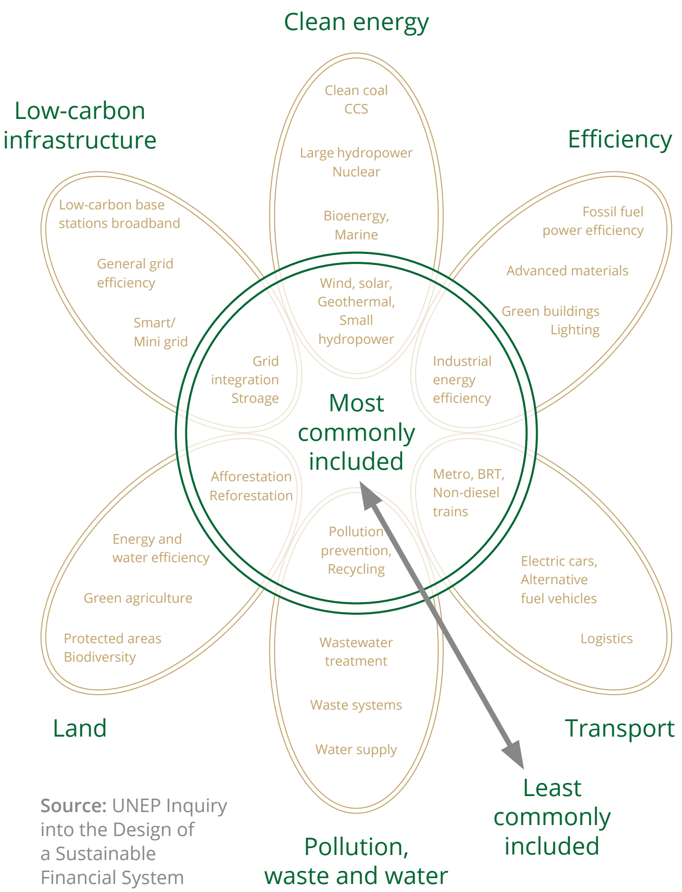
1.3.2 Green industry sectors

QUICK QUESTION: WHICH INDUSTRY SECTORS WOULD YOU ASSOCIATE WITH GREEN FINANCE?

Note your answer here before reading on...

Chapter 1: What is green finance? (Cont'd.)

Most definitions of green finance focus on its role in directing investment towards 'green' sectors – those that protect or enhance the environment. Some sectors are more universally accepted as 'green' than others, as shown in the following diagram.



Source: UNEP Inquiry into the Design of a Sustainable Financial System

Areas which are usually accepted as 'green' with little controversy, include renewable energy production, distribution and storage, energy efficiency in domestic and industrial buildings, green transport, recycling, pollution prevention, water conservation and forestation. Areas that are more often contested or infrequently cited as 'green' include: carbon capture and storage (CCS), nuclear energy and fossil fuel efficiency.

GREEN INDUSTRY AREA	DEFINITION
Renewable energy	Renewable energy comes from a source that is not depleted when it is used, or is naturally replenished within a human timescale. This includes solar, wind, geothermal, tidal, wave, hydroelectric and biomass power.
Energy distribution	Most energy is distributed through a grid (an interconnected network for transmitting power). Green energy distribution tends to focus on the integration of renewable energy into the main grid, distributed generation, microgrids (running separately from the main grid) and smart grids that detect and react to changes in energy usage.
Energy storage	Renewable energy storage is key to enabling an increase in the take-up and efficiency of renewables. It can include mechanical storage (e.g. pumped water), batteries and thermal energy storage.
Emissions reduction and capture	Emission reduction technologies aim to reduce the carbon dioxide (CO_2) produced by energy generation, transport and industrial processes. Emissions capture tends to refer to carbon capture and storage (CCS) – technology to capture CO_2 emissions produced in electricity generation and industrial processes.
Energy efficiency	Energy efficiency means reducing the amount of energy that is required to provide a product or service. It is often applied to buildings (domestic, commercial and industrial), appliances and vehicles.
Green buildings	Green buildings are designed, built and used in a way that is energy efficient, minimises the use of resources and water, encourages biodiversity and provides a healthy indoor environment.
Green transport	Green transport minimises CO_2 and other harmful emissions, uses renewable energy, is energy efficient and supports sustainable communities. The term can refer to public transport systems and infrastructure, as well as to private vehicles.

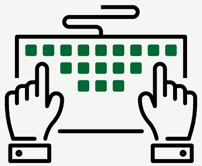
Chapter 1: What is green finance? (Cont'd.)

GREEN INDUSTRY AREA	DEFINITION
Water conservation	Water conservation aims to sustainably manage freshwater resources and to prevent water pollution in nearby lakes, rivers and local watersheds.
Pollution control	Pollution control aims to reduce or avoid the release of harmful substances into the environment, including the air, water and soil. Pollution can also be defined by the type of pollutant, including plastic pollution and thermal pollution.
Waste reduction and management	Waste reduction aims to minimise the amount of waste produced by individuals, households and organisations, including through resource efficiency and reuse. Waste management involves the collection, treatment, recycling, re-processing and disposal of waste.
Biodiversity and habitat protection	Biodiversity protection aims to preserve the full range of ecosystems, species and gene pools in the environment – the full variety of life on earth. Habitat protection aims to conserve, protect and restore the natural environments that sustain these plants and animals.
Afforestation / reforestation	Afforestation means the establishment of forests where previously they did not exist, while reforestation means the re-establishment of forests where they previously existed, either through direct planting or through natural growth.

Finance can support these areas in a number of ways, for example by providing long-term loans for new renewable energy projects; by providing green mortgages which link repayments to home energy efficiency improvements; or by providing venture capital for innovative new storage technologies. Sometimes projects may have competing environmental and social impacts and this can often lead to controversial financing decisions.

Chapter 1: What is green finance? (Cont'd.)

1.3.3 Green finance as an organisational approach



QUICK QUESTION: CAN YOU THINK OF SOME FINANCIAL SERVICES FIRMS THAT HAVE ADOPTED GREEN FINANCE AS AN ORGANISATIONAL APPROACH?

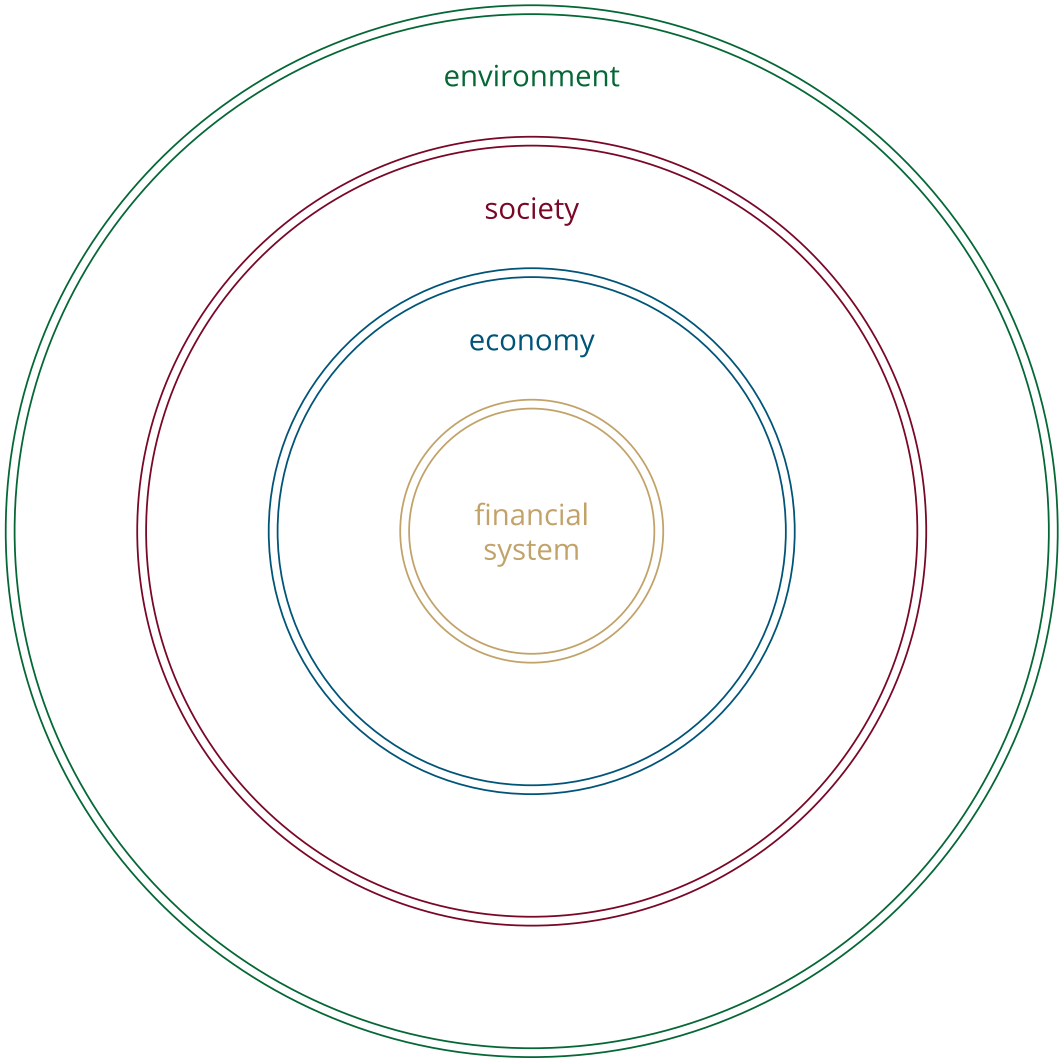
Note your answer here before reading on...

Green finance principles can be applied not just at a product or individual process level, but also across an entire financial services organisation. For some organisations, such as Ecology Building Society, Naturesave Insurance or Banca Etica, environmental sustainability has been central to their strategy, culture, and decision-making for many years. A growing number of large mainstream financial institutions are also incorporating green finance principles into some or all of their activities, and this trend has been accelerating, particularly after the Paris Climate Change Agreement was signed in December 2015.

This whole-organisation approach to green finance is rooted in an understanding that the financial system both serves and relies on the economy, which itself serves society and is embedded in the environment.

This 'embedded' approach means that when taking business decisions, organisations consider not just the financial implications of the decision, but also the implications for the wider economy, society and the environment. This mind-set can influence every area of the business, from operations, staff recruitment and development, and investment strategy, to product design and pricing, risk management, marketing and financial management. Green finance as a strategic approach is explored in Chapters 5 to 7.

Chapter 1: What is green finance? (Cont'd.)



CASE STUDY: ECOLOGY BUILDING SOCIETY

Ecology Building Society is dedicated to building a greener society by providing mortgages for properties and projects that respect the environment. It was established in 1981 by a group of pioneering founder members, who wanted to help finance environmental building renovations and to support sustainable development. By the end of 2016, its assets had reached more than £170 million and net profit was just under £1 million. As a mutual, any surpluses are used for the benefit of the Society's members, which number around 8,000.

The Society's Memorandum states that its purpose is: "making loans which are secured on residential property and are funded substantially by its members... To promote, in carrying on any business or other activity, ecological policies designed to protect or enhance the environment in accordance with the principles of sustainable development."

Ecology Building Society's mortgages incentivise lower-carbon lifestyles through a series of mortgage discounts linked to the energy efficiency of each property. Mortgage decisions are made on an individual basis, with careful consideration given to the potential environmental benefits and impacts of each project.

Ecology Building Society's headquarters building is designed to have an airtight structure, high levels of insulation and low energy requirements. Wherever possible, materials used in the building are from renewable sources, recycled or low toxicity. All of Ecology Building Society's electricity is sourced from renewables and it has offset the carbon emissions generated since the Society began in 1981.

Chapter 1: What is green finance? (Cont'd.)

1.4 GREEN FINANCE TODAY

Green finance is a growing phenomenon in the UK and globally, and will continue to grow rapidly:

- The World Economic Forum estimates that by 2020, about $5.7 trillion will need to be invested annually in green infrastructure, much of which will be in today's developing world
- According to the Climate Policy Initiative, approximately $360 billion is currently being invested annually in public and private client investments, so there is a very substantial investment gap – the majority of which will need to come from the private sector
- Investors worth $19 trillion have endorsed the recommendations of the Financial Stability Board Taskforce on Climate-related Financial Disclosures (TCFD)
- The Green Bond market has grown to over $100 billion of bonds issued annually
- Countries are beginning to issue sovereign green bonds, with the first issued by Poland in 2016 and subsequently followed by France, Fiji, Nigeria, Indonesia and Belgium. The largest of $7 billion was issued by France
- Global sustainably managed assets under management increased by 25% from 2014 to 2016
- 92% of the world's largest banks are members of the UNEP Finance Initiative
- Investment in the UK's clean energy sector has exceeded £100 billion since 2004
- 121 UK energy projects have been funded via crowdfunding, raising €118 million in total
- The UK Green Investment Bank has backed 98 green infrastructure projects, committing £3.4 billion to the UK's green economy.

Green finance is growing rapidly and presents significant commercial opportunities for financial services organisations. Despite rapid growth in recent years, there is still a very substantial investment gap to support a transition to a low-carbon world.

The scale of the challenge is beyond that of public finances alone and given the commitments made by the majority of national governments, a significant increase in support from the financial services sector is required to achieve the objectives set. This not only presents a commercial opportunity for the financial services sector, but also an opportunity for the sector to demonstrate its social purpose, by playing a key role in the transition to a low-carbon, sustainable world.

However, there is a long way to go before green finance reaches the scale and effectiveness necessary ('mainstreaming') to address our biggest environmental challenges. Banks and investors still provide significant amounts of funding to environmentally destructive activities, including the burning of fossil fuels far above the levels that must be observed to prevent catastrophic climate change. The following chapter will explore the scale of our environmental challenges and their connections to the financial sector.

Chapter 1: What is green finance? (Cont'd.)

QUICK QUESTION: WHAT MIGHT BE THE KEY BARRIERS TO GREEN FINANCE BECOMING MORE WIDESPREAD?

Note your answer here before reading on...

Chapter 1: What is green finance? (Cont'd.)

KEY CONCEPTS

In this chapter, we considered:

- The various definitions of green finance
- The difference between the term 'green finance' and related terms
- Some of the typical characteristics of green finance approaches
- Some indicators of the state of green finance in the UK and globally.

Now go back through this chapter and make sure you fully understand each point.

REVIEW

There is no single, fixed definition of green finance but most definitions focus on the role of the financial system in supporting the environment, preventing environmental damage and managing environmental risks.

Green finance is one of a number of terms that are used to label the broad area of finance that aims to protect or enhance the environment. There is an important difference between the scope of the terms: for example, 'sustainable finance' considers not just environmental but also social, economic and governance issues. Advocates for a sustainable finance approach argue that it is not possible to separate the environment from society.

For the purposes of this course, the definition of green finance is, "any financial initiative, process, product or service that is either designed to protect the natural environment or to manage how the environment impacts finance and investment". This is a broad definition, which focuses on enhancing and sustaining the natural environment, and managing current and future environmental (physical, transition and liability) risks.

Green finance products and services include those that channel capital to green industry sectors; those which design the product itself to reward environmentally-friendly activity and those which support the effective management of physical and transition risks. The most commonly cited green industry sectors include renewable energy production, distribution and storage, energy efficiency in domestic and industrial buildings, green transport, recycling, pollution prevention, water conservation and forestation.

Green finance can also be a whole-organisation approach, driving strategy, culture and business processes throughout a financial services firm. This is often tied to an environmentally focused corporate mission and an understanding of the financial sector as embedded in the economy, society and the environment. At present, however, the financial sector as a whole is not 'green'. Banks and investors still provide significant amounts of funding to environmentally destructive activities, including the burning of fossil fuels far above the levels that must be observed to prevent catastrophic climate change.

Green finance is a growing phenomenon in the UK and internationally, with the global transition to a low-carbon economy estimated to require approximately $1 trillion per year for the foreseeable future. This represents a very significant opportunity for the financial services sector: not only a commercial opportunity but also an opportunity for the sector to demonstrate its social purpose, by playing a key role in the transition to a low-carbon, sustainable world.

KEY TERMS

TERM	DEFINITION
Green finance	Any financial initiative, process, product or service that is either designed to protect the natural environment or to manage how the environment impacts finance and investment.
Renewable energy	Energy that comes from a source that is not depleted when it is used, or is naturally replenished within a human timescale (150 years maximum).
Fossil fuels	Fuels that are formed from the decayed remains of plants or animals, such as coal and oil.
Biodiversity	The full range of ecosystems, species and gene pools in the environment – the full variety of plant and animal life on earth.
Embedded approach	An approach that sees the financial system as embedded in the economy, society and the environment.